

1           2.       The method of claim 1 wherein the creating the parameter functions  
2 comprises:

3           (a1)     configuring each circuit of the plurality of circuits; and

4           (a2)     generating values of design parameters for each circuit according to the  
5 configured circuit, the values providing the parameter functions.

1           3.       (AMENDED) The method of claim 2 wherein the constraint set includes  
2 constraint parameters having values selectable to meet the design constraints and the  
3 optimizing set includes optimizing parameters having values to be optimized.

1           4.       (AMENDED) The method of claim 3 wherein selecting the new design  
2 points comprises:

3           (c1)     selecting values of the constraint parameters to meet the design constraints;

4           (c2)     determining values of the optimizing parameters corresponding to the  
5 selected values of the constraint parameters based on the parameter functions; and

6           (c3)     iterating c(1) and (c2) until values of the optimizing parameters are within a  
7 predetermined optimal range.

1           5.       The method of claim 3 wherein the constraint parameters include a delay  
2 parameter and the optimizing parameters include a power parameter.

1           6.       The method of claim 5 wherein the design constraints include a delay  
2 constraint.

1           7.       The method of claim 6 wherein (a1) comprises:  
2 sizing components in each circuit.

1           8.       The method of claim 6 wherein (a1) comprises:  
2 selecting a design technology for each circuit, the design technology being one of  
3 static and dynamic technologies.

1           9.       The method of claim 7 wherein (a2) comprises:

- 2 (a21) generating a circuit netlist representing the configured circuit;  
3 (a22) generating a timing file based on the circuit netlist using a circuit critical  
4 path;  
5 (a23) determining power of the configured circuit based on the circuit netlist;  
6 (a24) calculating timing values by using a timing simulator; and  
7 (a25) calculating power values by using a power estimator.

1 10. The method of claim 9 wherein selecting the new design points comprises:

- 2 (c1) selecting values of the delay parameter within the delay constraint;  
3 (c2) determining values of the power parameter corresponding to the selected  
4 values of the delay parameter based on the parameter function; and  
5 (c3) iterating (c1) and (c2) until values of the power parameter are within a  
6 predetermined optimal range.

1 11. (TWICE AMENDED) A machine readable medium having embodied  
2 thereon a computer program for processing by a machine, the computer program  
3 comprising:

- 4 (a) a first code segment to create parameter functions for a plurality of circuits  
5 in a subsystem, the subsystem having design constraints, each one of the parameter  
6 functions corresponding to each one of the circuits, the parameter functions representing a  
7 relationship among design parameters of the subsystem, the design parameters including  
8 constraint and optimizing sets;  
9 (b) a second code segment to select initial design points on the parameter  
10 functions having a first sum of the constraint set and a second sum of the optimizing set  
11 such that the first sum satisfies the design constraints; and  
12 (c) a third code segment to select new design points on the parameter functions  
13 such that the second sum is improved within the design constraints.

1 12. (AMENDED) The machine readable medium of claim 11 wherein the first  
2 code segment comprises:

- 3 (a1) a code segment to configure each circuit of the plurality of circuits; and  
4 (a2) a code segment to generate values of design parameters for each circuit  
5 according to the configured circuit, the values providing the parameter functions.

1           13.     (AMENDED) The machine readable medium of claim 12 wherein the  
2     constraint set includes constraint parameters having values selectable to meet the design  
3     constraints and the optimizing set includes optimizing parameters having values to be  
4     optimized.

1           14.     (AMENDED) The machine readable medium of claim 13 wherein the third  
2     code segment comprises:

3           (c1)     a code segment to select values of the constraint parameters to meet the  
4     design constraints;

5           (c2)     a code segment to determine values of the optimizing parameters  
6     corresponding to the selected values of the constraint parameters based on the parameter  
7     functions; and

8           (c3)     a code segment to iterate (c1) and (c2) until values of the optimizing  
9     parameters are within a predetermined optimal range.

1           15.     The machine readable medium of claim 13 wherein the constraint  
2     parameters include a delay parameter and the optimizing parameters include a power  
3     parameter.

1           16.     The machine readable medium of claim 15 wherein the design constraints  
2     include a delay constraint.

1           17.     (AMENDED) The machine readable medium of claim 16 wherein (a1)  
2     comprises:

3           a code segment to size components in each circuit.

1           18.     (AMENDED) The machine readable medium of claim 16 wherein (a1)  
2     comprises:

3           a code segment to select a design technology for each circuit, the design technology  
4     being one of static and dynamic technologies.

1           19.    (AMENDED) The machine readable medium of claim 18 wherein (a2)  
2 comprises:  
3           (a21) a code segment to generate a circuit netlist representing the configured  
4 circuit;  
5           (a22) a code segment to generate a timing file based on the circuit netlist using a  
6 circuit critical path;  
7           (a23) a code segment to determine power vectors of the configured circuit based  
8 on the circuit netlist;  
9           (a24) a code segment to calculate timing values; and  
10          (a25) a code segment to calculate power values.

1           20.    (AMENDED) The machine readable medium of claim 19 wherein the third  
2 code segment comprises:  
3           (c1) a code segment to select values of the delay parameter within the delay  
4 constraints;  
5           (c2) a code segment to determine values of the power parameter corresponding  
6 to the selected values of the delay parameter based on the parameter function; and  
7           (c3) a code segment to iterate (c1) and (c2) until values of the power parameter  
8 are within a predetermined optimal range.

1           21.    (CANCELLED)

1           22.    (THREE TIMES AMENDED) A system comprising:  
2 a memory for storing program instructions;  
3 a processor coupled to the memory to execute the program instructions, the  
4 program instructions when executed by the processor interacting with tools provided by a  
5 design environment causing the processor to at least  
6 (a) create parameter functions for a plurality of circuits in a subsystem, the  
7 subsystem having design constraints, each one of the parameter functions corresponding to  
8 each one of the circuits, the parameter functions representing a relationship among design  
9 parameters of the subsystem, the design parameters including constraint and optimizing  
10 sets,

11           (b)     select initial design points on the parameter functions having a first sum of  
12 the constraint set and a second sum of the optimizing set such that the first sum satisfies  
13 the design constraints; and

14           (c)     select new design points on the parameter functions such that the second  
15 sum is improved within the design constraints.

1           23.     (AMENDED) The system of claim 22 wherein the program instructions  
2 causing the processor to create the parameter functions causes the processor to:

3           (a1)     configure each circuit of the plurality of circuits; and

4           (a2)     generate values of design parameters for each circuit according to the  
5 configured circuit, the values providing the parameter functions.

1           24.     (AMENDED) The system of claim 22 wherein the constraint set includes  
2 constraint parameters having values selectable to meet the design constraints and the  
3 optimizing set includes optimizing parameters having values to be optimized.

1           25.     (AMENDED) The system of claim 24 wherein the program instructions  
2 causing the processor to select the new design points causes the processor to:

3           (c1) select values of the constraint parameters to meet the design constraints;

4           (c2) determine values of the optimizing parameters corresponding to the selected  
5 values of the constraint parameters based on the parameter functions; and

6           (c3) iterate (c1) and (c2) until values of the optimizing parameters are within a  
7 predetermined optimal range.

1           26.     The system of claim 24 wherein the constraint parameters include a delay  
2 parameter and the optimizing parameters include a power parameter.

1           27.     The system of claim 26 wherein the design constraints include a delay  
2 constraint.

1           28.     A method comprising:

2 (a) generating first and second parameter functions for a circuit corresponding to  
3 first and second technologies, each of the first and second parameter functions relating a  
4 constraint parameter and an optimizing parameter;  
5 (b) selecting a first initial design point and a first new design point on the first  
6 parameter function such that the first new design point corresponds to a first improved  
7 optimizing parameter within a design constraint;  
8 (c) selecting a second initial design point and a second new design point on the  
9 second parameter function such that the second new design point corresponds to a second  
10 improved optimizing parameter within the design constraint; and  
11 (d) selecting the first technology if the first improved optimizing parameter is better  
12 than the second improved optimizing parameter, else selecting the second technology.

1 29. The method of claim 28 wherein the first technology is a dynamic  
2 technology and the second technology is a static technology.